

CLAIMS

What is claimed is:

1. A muffler canister comprising:

a tubular body having an interior surface extending between a first end and an opposing second end, the interior surface bounding a chamber; and an exhaust cap being integrally formed on the second end of the tubular body, the exhaust cap having an interior surface bounding a channel extending through the exhaust cap, the channel being in communication with the chamber, at least a portion of the exhaust cap having a thickness that is different than a thickness of the tubular body.

2. A muffler canister as recited in claim 1, wherein the body and exhaust cap are comprised of a metal and are formed using impact extrusion.

3. A muffler canister as recited in claim 1, wherein the exhaust cap comprises a tubular side wall having a first end integrally formed with the second end of the body and an opposing second end terminating at an end face.

4. A muffler canister as recited in claim 3, wherein the body has a central longitudinal axis extending through the chamber thereof, the end face of the exhaust cap being disposed in a plane that forms an inside angle with the central longitudinal axis that is less than about 80°.

5. A muffler canister as recited in claim 3, wherein the side wall of the exhaust cap has an exterior surface that radially inwardly tapers from the first end to the second end thereof.

6. A muffler canister as recited in claim 3, wherein the first end of the side wall of the exhaust cap has an inside face that radially inwardly projects relative to the body, a tubular stem projects from the inside face toward the body, the tubular stem bounding at least a portion of the channel extending through the exhaust cap.

7. A muffler canister as recited in claim 1, wherein the body has a central longitudinal axis extending therethrough, the channel of the exhaust cap being bent or curved relative to the central longitudinal axis.

8. A muffler canister as recited in claim 1, wherein the tubular body comprises a top wall and a pair of opposing side walls extending therefrom, the top wall having a substantially flat exterior surface extending along the length thereof.

9. A muffler comprising:

- a muffler canister as recited in claim 1;
- an inlet cap disposed at the first end of the tubular body;
- a perf tube longitudinally disposed within the muffler canister; and
- noise absorbing packing disposed between the perf tube and the canister.

10. A muffler as recited in claim 9, further comprising a spark arrestor, the spark arrestor comprising:

a tubular neck removably disposed within the channel of the end cap, the tubular neck having a first end and an opposing second end; and

a spark barrier mounted at the first end of the tubular neck so as to be disposed within the muffler canister, the spark barrier being comprised of a mesh or porous material having one or more exposed folds so as to increase the surface area of the mesh or porous material per volume of space.

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11. A spark arrestor for use with a muffler, the spark arrestor comprising:
a base having an opening extending therethrough; and
a spark barrier mounted to the base, the spark barrier being comprised of
a sheet of mesh or porous material having a plurality of exposed folds through
which exhaust gas can pass, the folds increasing the surface area of the mesh or
porous material per volume of space.
12. A spark arrestor as recited in claim 11, wherein the base comprises a
tubular neck having a first end and an opposing second end, the spark barrier being
mounted to the first end of the tubular neck so that exhaust gas can pass through the
spark barrier and into the tubular neck.
13. A spark arrestor as recited in claim 12, wherein the tubular neck is
curved or bent.
14. A spark arrestor as recited in claim 11, wherein the spark barrier has at
least a substantially domed, conical, or frustoconical configuration.
15. A spark arrestor as recited in claim 11, wherein the spark barrier has a
mounting end secured to the base and an opposing free end spaced apart from the
mounting end, each of the plurality of folds longitudinally extending between the
mounting end and the free end.

16. A spark arrestor as recited in claim 15, wherein the free end of the spark barrier is sealed closed.

17. A spark arrestor as recited in claim 11, wherein the spark barrier has an elongated substantially tubular configuration.

18. A spark arrestor as recited in claim 11, wherein the spark barrier has a substantially polygonal transverse cross section.

19. A spark arrestor as recited in claim 11, wherein the plurality of folds comprises at least four discrete folds.

20. A spark arrestor as recited in claim 11, wherein the plurality of folds comprises at least seven discrete folds.

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21. A spark arrestor for use with a muffler, the spark arrestor comprising:

a base having an opening extending therethrough; and

a spark barrier mounted to the base, the spark barrier being comprised of a sheet of mesh or porous material having at least a substantially tubular, domed, conical, or frustoconical configuration, the sheet of mesh material further comprising:

a plurality of discrete exposed folds through which exhaust gas can pass;

or

a least one exposed continuous fold that repeatedly extends around or along the sheet.

22. A spark arrestor as recited in claim 21, wherein the base comprises a tubular neck having a first end and an opposing second end, the spark barrier being mounted to the first end of the tubular neck so that exhaust gas can pass through the spark barrier and into the tubular neck.

23. A spark arrestor as recited in claim 21, wherein the spark barrier has a mounting end secured to the base and an opposing free end spaced apart from the mounting end, each of the plurality of discrete exposed folds longitudinally extending between the mounting end and the free end.

24. A spark arrestor as recited in claim 21, wherein the spark barrier has a mounting end secured to the base and an opposing free end spaced apart from the mounting end, the free end of the spark barrier being sealed closed.

25. A muffler comprising:

a tubular body having an interior surface extending between a first end and an opposing second end, the interior surface bounding a chamber;

an exhaust cap disposed on the second end of the tubular body, the exhaust cap having an interior surface bounding a channel extending through the exhaust cap, the channel being in communication with the chamber;

an inlet cap disposed on the first end of the tubular body;

a perf tube longitudinally disposed within the chamber of the tubular body; and

a spark arrestor comprising:

a tubular neck having a first end and an opposing second end, the second end being removably secured to the exhaust cap such that the first end is advanced within the channel of the exhaust cap toward the body; and

a spark barrier mounted on the first end of the tubular neck so as to be at least partially disposed within the perf tube, the spark barrier being comprised of a sheet of mesh or porous material.

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26. A muffler as recited in claim 25, wherein the exhaust cap is integrally formed with the second end of the tubular body.

27. A muffler canister as recited in claim 25, wherein the body has a central longitudinal axis extending through the chamber thereof, the channel of the exhaust cap being bent or curved relative to the central longitudinal axis.

28. A muffler canister as recited in claim 27, wherein the tubular neck of the spark arrestor received within the channel of the exhaust cap is curved or bent.

29. A muffler canister as recited in claim 25, wherein the body has a substantially constant transverse cross section along the length thereof.

30. A muffler canister as recited in claim 25, wherein the spark barrier has one or more exposed folds through which exhaust gas can pass, the one or more folds increasing the surface area of the mesh or porous material per volume of space.

31. A muffler canister as recited in claim 25, wherein the spark barrier has at least seven exposed folds.

32. A muffler canister as recited in claim 25, further comprising noise absorbing packing disposed between the perf tube and the body.

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33. A muffler canister comprising:

a tubular body having a first end and an opposing second end, the tubular body comprising a top wall, a bottom wall, and a pair of opposing side walls extending therebetween, the top wall having a substantially flat exterior surface extending along the length thereof; and

a mounting bracket secured on the substantially flat exterior surface of the top wall.

34. A muffler canister as recited in claim 33, wherein at least one of the side walls has an outwardly bowed exterior surface extending along the length thereof.

35. A muffler canister as recited in claim 33, wherein the bottom wall has a substantially flat exterior surface extending along the length thereof.

36. A muffler canister as recited in claim 33, wherein the top wall has a thickness and each of the side walls has a thickness, the thickness of the top wall being greater than the thickness of at least one of the side walls.

37. A muffler canister as recited in claim 33, wherein the body has a substantially uniform transverse cross section along the length thereof.

38. A muffler canister as recited in claim 33, further comprising an exhaust cap integrally formed on the second end of the tubular body, the exhaust cap having an interior surface bounding a channel extending through the exhaust cap so as to communicate with the body.

39. A muffler comprising:

a muffler canister as recited in claim 33, the body having an interior surface bounding a chamber;

an exhaust cap disposed on the second end of the tubular body, the exhaust cap having an interior surface bounding a channel extending through the exhaust cap so as to communicate with the chamber of the body;

an inlet cap disposed on the first end of the tubular body;

a perf tube longitudinally disposed within the muffler canister; and

noise absorbing packing disposed between the perf tube and the canister.

40. A muffler as recited in claim 39, further comprising a spark arrestor, the spark arrestor comprising:

a tubular neck removably disposed within the channel of the end cap, the tubular neck having a first end and an opposing second end; and

a spark barrier mounted at the first end of the tubular neck so as to be at least partially disposed within the chamber of the body, the spark barrier being comprised of a sheet of mesh or porous material.

41. A muffler as recited in claim 40, wherein the sheet of mesh or porous material has a plurality of folds so as to increase the surface area of the mesh or porous material per volume of space.

42. A muffler canister comprising:

a tubular body having a first end and an opposing second end, the tubular body comprising a top wall, and a pair of opposing side walls extending therefrom, the top wall having a thickness, each of the side walls having a thickness, the thickness of the top wall being greater than the thickness of at least one of the side walls; and

a mounting bracket secured to the top wall.

43. A muffler as recited in claim 42, wherein the top wall has a substantially flat exterior surface extending along the length thereof.

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